

Fall 2016

the Periodical Fall 2016

Southern Adventist University

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the Periodical

Southern Adventist University Chemistry Department



Renovation includes colorful carpet and new seating areas

By Brent Hamstra

The hallways on the third floor of the Hickman Science Center were recently renovated, providing a new look for the Chemistry and Mathematics departments after 20 years in the building. The renovation was designed by Becky Djernes, the interior design coordinator, and included the following changes:

- Dark-gray carpet with lime green and blue accents was added.
- Upholstered benches in the hallway allow students to study in comfort and wait for



The renovation in Hickman Science Center included new signs for the Chemistry and Mathematics departments.

classes.

- The addition of LED light fixtures brightens the hallways while conserving

electricity.

- Bulletin boards have been re-covered in cloth complementing the wall colors.

- The walls have been repainted in shades of gray, lime green and blue. Lime green walls and large circular signs near the departmental offices draw attention to these locations. The circular signs and diagonally-oriented wood panels on the walls contain thought-provoking quotes.

In the sections of the hallway near the Chemistry Department facilities, the quotes are motivational in nature, use chemical and scientific language in non-scientific contexts, or relate science and religion.

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Committed to change

As chemists, we are in the business of studying and producing change. Whether it's a process as dramatic as an explosion or as subtle as a conformational change in a protein, we find changes of all kinds fascinating.



Brent Hamstra

place to go through to a place to go to.

And as surely as change came to our hallway, change will come to Southern. The changing attitudes toward higher education within our church and within the larger society make that inevitable. Many

changes will come to our communities, our nations and our world. Seeing how all of the pieces will fit together is challenging until those changes are complete.

Through it all, the faculty of the Chemistry Department remain fully committed to making our department a destination — not just a place that students pass through.

Clearly this was going to be a big change, and we were not sure on how this new look would turn out.

As the carpet was carefully measured and installed, and the lights were replaced, the plan started to make sense to us, and we began to see how everything would fit together. As the lettering on the wood panels was carefully applied and the benches were unwrapped and placed in position, we saw how the hallway had been transformed from a

While many of our students have plans and goals that involve more education after they graduate, we want to provide a place where they find lasting value in the education and experiences they have at Southern and take that value with them to their future schools and workplace. As they do, they will be equipped to produce positive change wherever life's journey takes them.

We shared the pictures of this process on our Facebook page in an album called "Change is Coming."



The third floor renovation in Hickman Science Center includes motivational quotes on the walls.

Renovation

Continued from page 1

Authors of these quotes include scientists such as Marie Curie, Thomas Edison and Robert Sapolsky, as well as other notable thinkers including Ellen G. White, Carl Jung, Khalil Gibran, Marilyn vos Savant and Martin Luther King Jr. Similar quotes with a mathematical focus can be found near the mathematics classrooms and offices.

Additional photographs of the renovation process and the new look of the Chemistry Department can be seen on our Facebook page at facebook.com/chemistryatsouthern.

Chemistry professors attend conference



Chemistry Department professors Rhonda Scott and Loren Barnhurst attended the 2016 Biennial Conference on Chemical Education at the University of Northern Colorado (UNC) in Greeley, Colorado, from July 31 to August 4. Scott presented her talk “Developing Student Proficiency in Reading Biochemical Literature” while Barnhurst gave two talks, “The Socratic refresher: How to keep previous content front and center” and “Chemical poetry: Engaging the creative mind.” Scott and Barnhurst met with alumnus Travis Knowles (B.S., Biochemistry, 2011), at left, who is currently pursuing his doctorate in Chemical Education at UNC. Additionally, chemistry department colleagues from other Adventist universities met several times, above left, to network and share ideas in an effort to address challenges in higher education and to discuss how to best provide for students as they prepare for the next phase of their professional lives.



Keep in touch with the Chemistry Department!

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southern.edu/chemistry

Find us on Facebook:

facebook.com/chemistryatsouthern

Email us:

chemistry@southern.edu

Call us:

423.236.2931

FORENSIC FUN

High school students learn during chemistry camp

By Jan Cathey

The Chemistry Department held its first forensic chemistry summer camp in late July. Fifteen high school students spent three days on campus and expanded their chemistry knowledge while learning more about Southern.

The camp provided students experience with forensic science analysis techniques that utilize chemistry concepts.

"I thought the camp was a really great experience," one high school student said. "I appreciated that it was presented as close to real life as possible, and that it covered so many different areas."

The camp featured many areas of chemical analysis. Using mitochondrial DNA testing, the students identified the suspect who committed a simulated crime. Fourier transform infrared spectroscopy was used for drug identification. Gas chromatography-mass



High school students learned about various types of chemical analysis during a forensics summer camp that was led by the Chemistry Department faculty.

spectrometry was used to identify an unknown organic compound. Different water sources on campus were tested to identify naturally-occurring and human-generated pollutants. Atomic absorption spectroscopy was

used to determine the amount of lead contamination in a water source. The campers detected latent fingerprints using fluorescence spectroscopy and were also exposed to several controlled explosive

demonstrations.

The instructional team was led by Jan Cathey, who was assisted by former forensic investigator Emily Hamstra (B.A. Chemistry, 2003), and Marty Briggs of Georgia-Cumberland Academy. Brent Hamstra, Loren Barnhurst, Bruce Schilling, and Mitch Menzmer provided background instruction in their area of expertise and assisted students with hands-on activities. Rhonda Scott and Heidi Olson also assisted with the camp.

The purpose of the camp was to provide students with knowledge of forensic analysis techniques and to help them experience the work of a forensic scientist. High school chemistry was recommended as a prerequisite for camp attendance, and lectures were presented to help the students understand the forensic methods employed. Then the campers were exposed to the chemical

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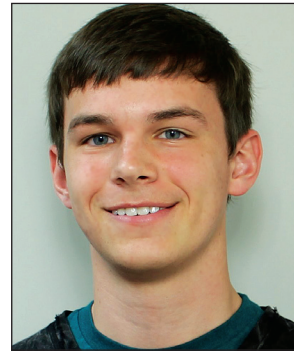
December 2016 graduates



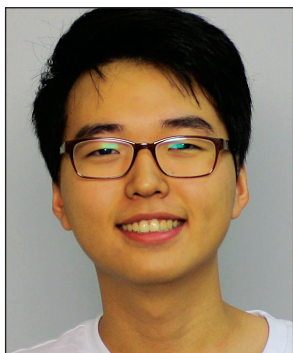
Kevin Dang
B.A., Chemistry
Future plans: Attend dental school



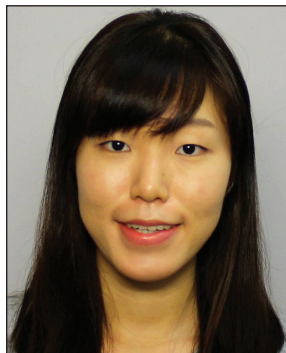
Chibuikem Erundu
B.S., Chemistry,
Biochemistry Emphasis
Future plans: Attend medical school



David Rittenhouse
B.A., Chemistry
Future plans: Attend dental school



Joshua Shin
B.S., Chemistry,
Biochemistry Emphasis
Future plans: Attend graduate school



Angela Yoon
B.A., Chemistry
Future plans: Attend pharmacy school

Forensics

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techniques and shown the practical applications of the chemistry involved. Although a strong background in chemistry is needed to be a forensic scientist, the camp also emphasized relevant knowledge from other fields. Documentation in forensic science was stressed, as each participant received a lab



Emily Hamstra, right, instructs students during the forensics camp.

notebook to record their observations. Chemical safety was strongly emphasized, and each camper was given a pair of safety goggles.

"The camp was very informative and interactive," one student said. "The instructors were clearly excited about teaching, which in turn, made us excited about learning."

The camp was enjoyable and informative for students and instructors. Plans for next year's camp are underway and student feedback is appreciated. Students interested in participating can contact the Chemistry Department.

BIBLICAL APPLICATION

Lessons from a tornado

By Bruce Schilling

The date April 27, 2011, is a day my family and I will never forget. More than 200 tornadoes formed across the Southeast. One of the most powerful passed through our property and destroyed our home, altering our lives forever. Here are a few lessons my family members and I believe you can learn from living through a high-end EF4 tornado and its aftermath.

1. When we look at the news with its daily shootings and bombings, we think that the world is a terrible place, but there are many amazing people in the world. The outpouring of love, support and physical help started the day after the tornado. Southern gave us a Southern Village apartment to live in, two cars to drive and warehouse space to store belongings for weeks after the storm. From day one, groups of people and individuals provided food and helped pick up trash, pack belongings, cover windows, and cut, haul, burn, split and stack wood. One of Southern's goals is to teach students a life of service. After being on the receiving end of many hours of help, I can tell you that those you serve will be appreciative. In Matt. 22:39, Jesus tells us to love our neighbor as our self and we were given many demonstrations of that love.



The tornado that hit Apison and destroyed the Schillings' home in April 2011 caused much damage, but there are lessons to learn when tragedy strikes.

2. Never get upset over things you can't change. My son David learned that when you are involved in a helpless situation, don't worry and stress about the situation. If you can't change the situation, worrying will not help. Give it to God and let go. The loss of worry and stress is liberating.

3. Stop asking why. We know many people in Apison wondered why God allowed the tornado to hit them. We believe the tornado was a random weather phenomenon that hit our property. Asking why will not help because you are not likely to get an answer. Move on with your life.

4. Don't fixate on tragedy. That is difficult when every day you see the effects – the ruined house and sheds and the acres of broken trees. But you have to continue living with the help

of God, family and friends. Try to return to a normal routine and find something good that happened every day.

5. Even with sin, God's creation is incredible. We have acres of downed or bent trees from the storm. The amount of growth in the last 5 ½ years is amazing. I am reminded of 2 Chron. 7:14 where it says "If my people, who are called by my name, will humble themselves and pray and seek my face and turn from their wicked ways, then will I hear from heaven and will forgive their sin and heal their land." We've been able to watch God slowly heal our land.

6. Put your life into God's hands. We don't know why tragedies happen, but we need to remember that the all-powerful Creator of the universe loves us and will never let us go.

ALUMNI SPOTLIGHT

Sarah Belensky, M.D.

What attracted you to Southern?

I wanted to learn skills that would further my career goals and equip me to serve my heavenly Father.

Why did you choose to study chemistry?

Many paths led to the goal of medical school so I considered other majors. I could not get away from the fact that I really love chemistry!

Describe your experience at Southern. What is your favorite memory at Southern?

My years at Southern (2004-2009) were some of the best of my life. My favorite memories include backpacking and hiking with friends and professors, heartfelt Bible studies in dorm rooms and homes, countless hours on the biology trail and chemistry club get-togethers.

Where was your favorite place to study?

Sometimes I would study in the car en route to a wilderness destination or sit at a table along the Promenade. I could often be found in the library or my dorm/apartment room.

What was your favorite class?

My favorite class was biochemistry, but I also thoroughly enjoyed massage and hydrotherapy class.



Sarah Belensky, a Chemistry Department graduate, visits Glacier National Park. She is currently completing a fellowship in high-risk obstetrics.

Tell us about your life immediately after Southern.

After Southern, I completed four years of medical school at Loma Linda University, then three years of rural family medicine residency in Idaho. I am now in the midst of a one-year fellowship in high-risk obstetrics.

What are your plans for the near future?

Loma Linda has a loan repayment program that will likely send me to Africa next year to run a rural mission hospital.

Can you share any experiences at Southern that helped you in your life?

My year spent as a student missionary was one of the most incredible experiences I have

ever had. I learned more lasting values that year than any other.

What advice do you have for current students who want to make the most of their time at Southern?

My motto in life is work hard, play hard. I spent long hours studying, but I balanced that with activities that rejuvenated me. I think everyone should be involved in both regular community service and prayer/Bible study. Those kept my relationship with God alive and my priorities straight. Get outside often, take advantage of interacting with professors and seek to build friendships to last for eternity.

Note: This interview has been edited for brevity and clarity.



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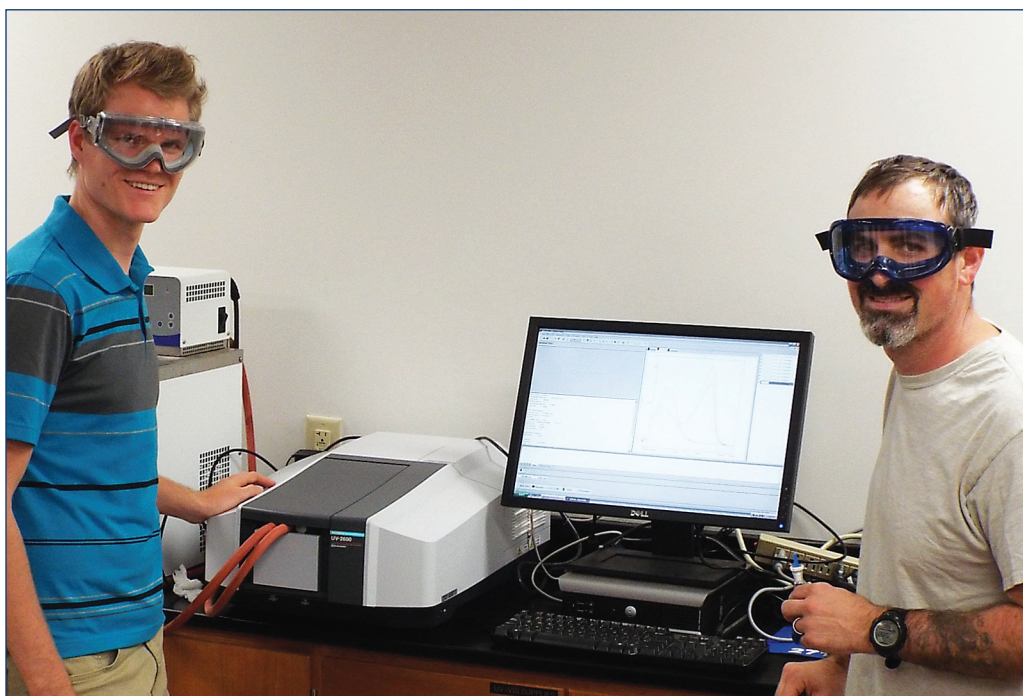
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Rhonda Scott, Ph.D.
Heidi E. Olson, Office Manager

Chemistry department acquires spectrophotometer



The Chemistry Department's most recent equipment acquisition is a new Shimadzu UV-2600 ultraviolet and visible scanning spectrophotometer, replacing our oldest Shimadzu UV-2101 PC UV-vis spectrophotometer. We still maintain two Shimadzu UV-vis scanning spectrophotometers - a UV-2450 along with the UV-2600 - that see regular activity in Physical Chemistry lab, Biochemistry lab, and Instrumental Analysis. In addition, the equipment serves as a key piece of instrumentation for students taking Introduction to Research.